



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,373	06/05/2001	Wilhelm Reiter	033275-225	5771

21839 7590 03/19/2004

BURNS DOANE SWECKER & MATHIS L L P
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER

KIM, TAE JUN

ART UNIT PAPER NUMBER

3746

DATE MAILED: 03/19/2004

22

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/873,373

Applicant(s)

REITER ET AL.

Examiner

Ted Kim

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-7, 9-13, 15-17 and 21-29 is/are pending in the application.
- 4a) Of the above claim(s) 4, 6, 7, 11-13, 17, 21, 25 and 27-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2, 3, 5, 9, 10, 15, 16, 22-24 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/12/04 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2, 3, 5, 9, 10, 15, 16, 22-24, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al (6,253,554) in view of Bunker (5,611,197) and optionally Lee (5,498,133). Kobayashi et al teach a gas turbine system (note that there are many applicable embodiments, see Figs. 6 and 8 for the broadest applied embodiments) comprising a compressor 8 that compresses air to compressor end air that is available on the outlet side, a combustor, a turbine, first cooling lines 28 (see Fig. 6) in which process compressed air is removed from the compressor, is fed as cooling air for cooling inside an internal cooling channel 31a, 31b through thermally loaded components of the combustor

and/or turbine, second cooling lines 32 from which cooling air from the components back to the compressor 8, wherein, in the manner of targeted leakage, a small part of the cooling air is fed for film cooling into the turbine stream through drilled film cooling openings provided on the components. The cooling air is returned via 32 to the compressor at an intermediate location and compressed and added to compressor end air 28, in analogous fashion to that disclosed by applicant in Figure 1. The air extracted in the first line 28 is additionally cooled by cooler 16 prior to cooling turbine components. Kobayashi et al specifically teach the cooling system recovers only a part of the cooling air (col. 15, lines 48-col. 16, line 14), i.e. some of the cooling air is injected into the high pressure sections (compare with Fig. 7 for example). As is well known in the gas turbine cooling art, this is inherently film cooled. However, to avoid any ambiguity, Lee teach that the gas turbine blades are film cooled 40 at both upstream 22 and downstream 24 edges, the blades are either rotor blades or stationary (stator) blades (col. 2, lines 17-24). It would have been obvious to one of ordinary skill in the art to film cool the turbine components, as taught by Lee, as being the standard practice in the art and in keeping with Kobayashi's requirement for allowing leakage into the gas turbine stream, in order to maintain the cooling effectiveness. Kobayashi et al do not teach a cooler in the second cooling line. Bunker teaches taking compressor air in a first line 44B, cooling gas turbine component parts 20B and returning the cooling air in a second line 46B where a cooler 50 serves to cool the cooling air in the second line (see col. 5, lines 29+) and can be used to better match the temperature of the return air in the second line to that in the compressor. It would have been obvious to one of ordinary skill in the art to employ a

cooler in the return line, in order to cool the return line and match the temperature of the cooling air to that within the compressor.

Response to Arguments

4. Applicant's arguments filed 2/12/04 have been fully considered but they are not persuasive. Applicant's arguments concerning the combination of Bunker and Kobayashi are directed to the fact the Bunker does not have targeted leakage in the cooling components for film cooling and Kobayashi does not have the cooler in the second cooling line that is returned to the compressor and that Kobayashi teaches cooling the cooling air before cooling the high temperature components. This reasoning is not persuasive as Bunker teaches the cooler in the second cooling line so that the temperature of the gases that have cooled the high temperature components can be cooled to better match the temperature of the gases in the compressor (see col. 5, lines 29+). As for Kobayashi, while the cooling air in the first cooling line is cooled prior to cooling the high temperature cooling air, there is nothing in the art of record that would prohibit the further cooling in the second cooling line, especially when considered in light of the teachings of Bunker. As for using the technical solution of Bunker (closed circuit) with Kobayashi (partially closed circuit with leakage), it is clear that both references have the second cooling line/return line to the compressor and hence incorporation of the cooler into that line of Kobayashi, as taught by Bunker, would be in the analogous location.

Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 703-308-2631. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

The fax numbers for the organization where this application is assigned are 703-872-9306 for Regular faxes and 703-872-9306 for After Final faxes.

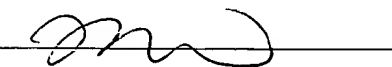
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu, can be reached on 703-308-2675.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of Technology Center 3700, whose telephone number is 703-308-0861.

General inquiries can also be directed to Technology Center Customer Service Office at 703-306-5648 or the Patents Assistance Center whose telephone number is 800-786-9199.

Furthermore, a variety of online resources are available at

<http://www.uspto.gov/main/patents.htm>



Ted Kim	Telephone	703-308-2631
Primary Examiner	Fax (Regular)	703-872-9306
March 10, 2004	Fax (After Final)	703-872-9306
Technology Center 3700 Receptionist	Telephone	703-308-0861
Technology Center 3700 Customer Service	Telephone	703-306-5648
Patents Assistance Center	Telephone	800-786-9199